

# W5YI

America's Oldest Ham Radio Newsletter

## REPORT

Up to the minute news from the world of amateur radio, personal computing and emerging electronics. While no guarantee is made, information is from sources we believe to be reliable.

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## Informative FCC Forum at Dayton Hamvention!

It used to be that amateurs everywhere made their annual trek to ham-mecca the last weekend in April. It is now the third weekend in May. This year's weather was beautiful which helped boost attendance to an estimated 32,000.

General Chairman Dick Miller, N8CBU and the Dayton Amateur Radio Association crew did their usual outstanding job. It is, without a doubt, the best managed hamfest that we go to ...and we go to a lot of them!

The sold-out Hamvention banquet (held on Saturday evening, May 17) featured astronaut Ron Parise, WA4SIR as the keynote speaker. He showed several slides of ham radio operation from the Space Shuttle and jokingly told about how his two meter transceiver once triggered an electronic flash on a nearby camera causing quite a stir onboard until the crew could determine what the strange sparks were and what was causing it. "We never told mission control about that!" he said.

Parise also played a tape of what it sounded like on the shuttle to have hundreds of hams trying to contact him on two meters as he crossed the U.S. in just a few minutes at 17,500 mph.

### **There were goodies galore!**

We noticed a lot of PC-controlled transceivers - including one from a company that we had never heard of. The Kachina computer-controlled HF transceiver is made by an American (Arizona) company who has been building commercial transceiv-

ers for twenty years. This is their first amateur product ...and it was revolutionary!

The Kachina (a Hopi Indian word) 505DSP is basically a table top (or under-counter - or hide it in the closet up to 75-feet away) box that plugs into your computer's serial port. The control-head (for microphone or CW key) fits into a front panel PC drive bay. You don't need speakers if you have a sound-card system.

Kachina's slogan is "Why have knobs if you have windows?" and HF operation is by point-and-mouse click tuning or keyboard typing. Instead of a manual, you get an on-screen help menu.

Kachina had several working models (complete with outside HF antenna) operating from the convention floor. I fiddled with one whenever I had the chance and particularly liked the on-screen spectrum analyzer (which highlighted the pile-ups), automatic frequency calibration, QSO logging, the real-time (built-in Smith chart) readout of antenna impedances and internal antenna tuning. You simply click the mouse at the pileup on the band-sweep window to join a station or group. There is no tuning what so ever! The receiver has a resolution of 1 Hz continuously from 100 KHz to 30 MHz. Transmits 100W on 160-m to 10m (SSB/AM/CW.)

An option (available in the fall) permits automatic on-screen CW reading with answer by keyboard typing. Although it has a built-in keyer if you want to use it, CW operators (operating at up to 80 wpm) never need to learn the code at all! The Kachina

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booth was totally jam-packed the entire three days! List: \$1995, Tel. 520-634-8053 <<http://www.kachina-az.com>>

Alinco also showed a business-card sized 2-meter handy-talkie which is the smallest two meter rig we have ever seen! (Tel. 310-618-8616)

## FCC Forum at Dayton

Officials from the FCC's Washington, DC Private Wireless Division gave an hour-long presentation on Amateur Radio licensing procedures and rule making. John B. Johnston, W3BE and Bill Cross, W3TN started off by inviting everyone to visit the Commission's Amateur Radio Internet web site located on the Wide World Web at <http://www.fcc.gov/wtb/amaradsrv.html>.

"First you go to: 'fcc.gov.' Then click on 'Wireless' and then on 'Amateur Radio Services.' At the top of our home page, we list the most recent rule making items for which we think you might be interested. Each listing is linked to the item so that all you have to do is click your mouse to view the item."

"Currently, there is the Report and Order in WT Docket No. 95-57. That is your 'sundry item'. There is also the *Notice of Proposed Rule Making* in WT Docket No. 97-12. That is your 'Spread Spectrum item'.

"Your E-Mail made it quite clear what you wanted to see on your web page. First, there was, 'How do I become an amateur operator?' For that, we put together a section on 'How to Obtain a License'. Under that heading is your list of VECs, the exam fee, and how to renew your license and how to change your name or address of record.

"There are the public announcements of the procedures of your Sequential Call Sign System and your Vanity Call Sign System. Under the vanity heading are the answers to your most frequently asked questions about the vanity system. There is also your Interactive Vanity Call Sign Application.

"There is information on obtaining a copy of your rules both from the Internet and from the Government Printing Office. There are answers to frequently asked questions about your communications. We also provide the *Memorandum Opinion and Order* in PRB-1, the landmark 1985 pre-emption on your antennas.

"There is information on the arrangements for your international communications including the list of countries with which the United States has made arrangements for your third-party communications. There is a list of the countries with which the United States has made reciprocal operating arrangements.

"Your E-Mail also was asking:

- 'How do I renew my license?'
- 'Where do I send my application for license renewal?'
- 'Can I renew electronically?'
- 'How do I access the FCC data base?'
- 'How can I find when I was first licensed?'

"It might be helpful to recap the answers to these questions for you so that you can help provide the cor-

rect information to the hams back home. You need a *FCC Form 610* to renew your license. You can obtain it from our forms contractor at (800) 418-FORM. You may also download the form from the Internet at: <http://www.fcc.gov/formpage.html> or from our 'Fax-on-demand' system (202 418-0177 or 418-2830). Use the handset of your machine and follow the instructions.

"The best time to file for renewal is 30-60 days before expiration. Please do not file more than 90 days before expiration. There is no fee. You may receive an expiration notice from one or more of the private electronic-filing providers, but you are not required to use their services. When your application for renewal has been received at our Gettysburg address or at a private electronic-filing provider on or before the license expiration date, your operating authority is continued until the final disposition of your application.

"If you allow your license to expire, you may still apply for renewal during a two-year grace period. Your application document must be received at Gettysburg or at a private electronic-filing provider on or before the end of the grace period. Unless and until the license is renewed, you have no operating privileges.

"Your private electronic-filing providers can file your Form 610 for you. Your provider may charge you a fee for that service. That is a transaction between you and your provider. Currently, only an entity that is a VEC can be a private electronic-filing provider. That activity, however, is separate from its VEC responsibilities.

"If your license has not expired, Section 97.21 requires you to apply for modification of the license to show your correct mailing address and name. Form 610 is also used for this purpose. There is no fee.

"Please keep your current mailing address on the data base. Revocation of your station license or suspension of your operator license may result if correspondence sent to you by the FCC is returned as undeliverable because you failed to provide the correct mailing address.

## Looking up call signs

"Every day we receive several inquiries about looking up call signs on the Internet. We make our data base available in zip files. Several private providers download them and extract parts of the information for you to use for lookup. These are excellent projects. They help cut the delay before your new hams can get on the air. They help you with your vanity call sign system. They also help you with your self-policing. Just your accessibility to knowledge of the license status of transmitting stations must help you to discourage unlicensed stations from operating on your bands.

"You can access our data base directly for real time queries. The charge is \$2.30 per minute. The first two minutes are free. You can use dates, zip codes, licensee names and callsigns.

From the Wireless Telecommunications Bureau



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Internet site at <http://www.fcc.gov/wtb/wirehome.html>, choose 'Wireless Electronic Commerce' and 'Future Electronic Commerce Applications'. Select the 'amateur' application. A few of you have noticed that your name was misspelled or that the data base contains some other keying error.

"When you find a keystroking error in your license grant, you should call it to the attention of Consumer Assistance. You can write to our Gettysburg address. We do request, however, that you do not ask us to change it by telephone or E-mail. For those of you who want to retrieve information from our archived records, you can make arrangements with the our copy contractor.

## Vanity call signs

"There have been about 14,000 vanity call signs issued. You wanted the vanity system to be fair and equitable. You also told us what you meant by "being fair and equitable." We have tried very hard to get it right. With this system, we are using an 'auto-grant' process. Your vanity call sign requests are processed without manual intervention.

"Also, applications for vanity call signs may be filed electronically. Several of you are helping out by keeping close watch on the vanity call signs that are being assigned. You brought to our attention, for instance, several call sign requests that were dishonest. You asked for a series of opening gates to allow some of you to have a head start at the vanity call signs. The gates also allow the system to be brought on-line in phases. Each phase helps validate the system procedures and alert us to any adjustments needed.

## WT Docket 95-57

"Several matters of concern to you were combined into your 'Sundry Item.' You wanted the eligibility for your **CLUB STATION LICENSES** to be tightened up by requiring that the club have at least four members. That was done.

"Many of you like to append a **SELF-ASSIGNED INDICATOR** to station identification announcement in order to attract greater attention to the on-air presence of your station. The rules required that the indicator come *after* your call sign. Some of you, however, wanted to append it to the *front*. The FCC gave you all possible combinations: *Front, back, front and back, or neither*.

"You had asked that the block of 750 one-by-one call signs be used for your **SPECIAL EVENT STATIONS**. You now have, therefore, a special event call sign system that you self-administer. When your station is operating in conjunction with one of your special events, you may substitute for your assigned call sign -- in the station identification announcement -- a self-selected one-by-one call sign. You must also announce your assigned call sign at least once each hour during such operation so that listeners can determine your true

identity.

"Your community has on-line systems to provide you with license information. You are expected to use this experience to set up a system to coordinate the use of your special event call signs. We will certify volunteer entities to serve as your amateur station special event call sign data base coordinators. They will coordinate, maintain and disseminate a common on-line data base for the special event call signs. Your coordinators will be selected on the basis of their ability to coordinate, maintain and disseminate world-wide a common on-line data base. A *Public Notice* will announce when your entities may propose to volunteer their services.

Your comments opposed our proposal to authorize your VEs to give you **CREDIT FOR ANY EXAMINATION** that you passed in obtaining a license that you formerly held but allowed to lapse. If you allow your license to expire beyond the two-year grace period, therefore, you will have to pass the exams when and if you decide to obtain another amateur operator license.

Attending an exam session these days, however, is hardly a hardship. Your VEs provide you with abundant examination opportunities. Moreover, you have ample notification and opportunity for license renewal. Your license expiration date is shown on our licensee data base, so that it can be obtained through the Internet even if you lose the license document. Your private electronic-filing providers use this information to remind you that expiration is about to occur.

For those of you who inadvertently fail to renew, a two-year grace period is allowed. At the end of the grace period, your record is purged from the data base and the call sign becomes available to the vanity call sign system. The amended rules also provide recognition for your VE team leaders.

## Spread Spectrum, WT 97-12

"The topic you should be working on at this time is spread spectrum. Your interest in the frequency sharing potential for spread spectrum technology goes back more than 40 years. That is not surprising because you need to work out ways that allow you to best share your spectrum.

"You were the first service to receive authorization for spread spectrum. That was back in 1985. Section 97.311 authorizes both frequency hopping and direct sequence transmissions. You can have up to 100 watts transmitter power.

"The international limitations are overcome by authorizing only for communications between points within areas where the amateur service is regulated by the FCC. Your spread spectrum transmissions must not be used for the purpose of obscuring the meaning of any communication.

"The Notice proposes that these rules be relaxed by authorizing more spreading sequences.

(Continued on page 9 -- FCC Forum)



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## **PUBLIC COMMENTS ON WT DOCKET 97-12 EXPANDING AMATEUR SPREAD SPECTRUM USE**

The comment period closed on WT Docket 97-12, "Amendment of the Amateur Service Rules to Provide for Greater Use of Spread Spectrum Communications Technologies." A Notice of Proposed Rule Making (FCC 97-10) was released March 3, 1997 suggesting that additional spreading codes and automatic power limiting circuitry be authorized in the Amateur Service. The public comment period closed on May 5<sup>th</sup> ( Replies close June 6<sup>th</sup>). The following are some of the more prominent comments received at the FCC:

### **American Radio Relay League (Newington, CT)**

"The Notice proposal is essentially a deregulatory plan to encourage and facilitate experimentation with SS communications in the Amateur Service. The League wholeheartedly supports each of the proposals. The rule changes offer the opportunity to experiment with SS modes, thus to develop practical applications in addition to those already known.

"The amendment of the rules to permit experimentation is a proper course of action for the Amateur Service, which is fundamentally self-regulated service that makes its own efficient accommodations for the varied uses of its frequency allocations.

"The Commission properly has proposed no restrictions on amateur SS operation in order to protect Part 15 devices, which operate at sufferance to licensed services in certain bands. No such restrictions exist relative to other emission modes, and there is no justification for any restriction on any licensed service's use of its own allocations in order to protect SS Part 15 devices. (Christopher D. Imlay, Washington, DC)

### **Tucson Amateur Packet Radio Corporation (Tucson, AZ)**

TAPR was founded in 1982 as a national organization with interests in the areas of packet and digital communications. It grew out of a 1981 effort to design a packet radio Terminal Node Controller, or "TNC," that would be available to amateurs at modest cost.

Today, TAPR continues as an international, membership-supported research and development organization for the amateur radio community. TAPR continues to develop new communications technology, provide kits for the amateur community, and promote the advancement of the amateur art through publications, meetings, and communications standards. TAPR also maintains a web site <<http://www.tapr.org>> which includes a page specifically addressing current amateur spread spectrum issues <<http://www.tapr.org/ss>>.

Spread Spectrum technology has not made great advances in the amateur radio service since it was first permitted in 1985, in part due to the fact that, by today's standards, the part 97 regulations on amateur SS are extremely restrictive. In particular, the small number of spreading codes permitted under Section 97.311(d)(1) inhibits the use and development of SS by amateur radio stations. TAPR believes it is in the public interest, and in the interest of the amateur radio service, to change the rules for SS in order to accelerate the adoption of SS by the general amateur community.

...TAPR supports the Commission's proposal to modify Part 97.311(b) as it pertains to the unintentional triggering of re-

peater inputs. This provision is redundant when considered in relation to the existing sections in Part 97 which deal with how interference should be treated and handled. This single provision alone has been a subject of concern for some time to members of the repeater operator/owner community and rightly so.

...TAPR feels that the proposed wording of this section puts an unnecessary burden on those who choose to utilize SS emissions. ...it seems inappropriate to continue to single out SS to be considered secondary to all other allowable emission modes authorized in the service. We therefore ask the Commission to strike out the proposed section 97.311(b) in its entirety. The Commission's rules in this area should go no further than to set a minimum transmitter power output level and to set limits on spurious emissions outside the amateur radio bands.

...TAPR supports the Commission decision to delete sections 97.311(c) and (d), in order to permit SS emissions and spreading codes that are not currently authorized.

...TAPR does not agree with the proposed automatic power control provision of section 97.311(g). [TAPR] no longer feels that this provision should become a part of the rules governing SS emissions. Further discussion and experimentation ...has convinced TAPR that the implementation of this provision would impose a serious handicap on the future development of this emission mode. While TAPR agrees that technically it is simple to control the output power of a transmitter, it is quite another matter to make this control automatic and foolproof over a wide range of applications and uses that are common to day in the service.

Further, TAPR would like to see the limit on transmit power to 100 watts ...also deleted. ...100 watts of power is more than enough for most terrestrial SS operations, this limit may present problems for some of the more interesting applications ...such as EME (Earth-Moon-Earth) operations.

...sections 97.311(e) and (f) ...place a significant record-keeping burden on any operator... TAPR ...asks the Commission to now establish parity between SS and all of the other emission modes (including pulse) and delete the burdensome provisions of these sections.

...TAPR ask[s] that the Commission allow SS emissions on all amateur radio bands above 50 MHz. ...the Commission's rules should go no further than to set a maximum transmitter output power and to set reasonable limits on spurious emissions outside the amateur bands. Conventions for all other parameters of operation such as operating frequencies, modulation method, bandwidths, protocols, etc. are best left to the development of the amateur radio community itself.

...TAPR feels that the station identification requirements of section 97.119(b)(5) should be deleted. The interference and harm to the band in which an SS station is operating that would be caused by a requirement to use a CW identification far outweighs the benefits that would accrue for monitoring purposes from the use of such an ID. ...it is vital to avoid an ID requirement that would in itself cause interference even when the associated SS emission does not. ...it would be better for the amateur radio community to develop approaches for handling the necessary functions of monitoring and identification of SS emissions. (Dewayne Hendricks, TAPR)

### **Robert A. Buaas, K6KGS (Huntington Beach, CA)**

"I hold a Special Temporary Authorization (STA) dated December 27, 1994, that permits experimentation with any spread spectrum (SS) technology in all Amateur spectrum



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above 50 MHz. My involvement with Amateur SS dates back to its original contemplation by AMRAD, in whose STA I participated. I have contributed to the development of successful commercial Part 125 SS systems, and I am a charter member in IEEE P902.11 (the Wireless LAN Ethernet Standard development project.)

I view the adoption of the Rules Change ...with considerable dismay. While its claimed goal is to simplify and encourage SS, it in fact would contribute to the reduction or elimination of its use.

I urge that Commission turn aside this proposal in favor of one which implements the spirit of the environment provided for participants of the STA(s), to wit,

- a) operation in any Amateur bands at 50 MHz and above without restriction,
- b) use of any coding and/or modulation technology imaginable,
- c) permit 'in mode' identification, and
- d) eliminate restrictions, thus providing encouragement for designs that reduce interference.

To date, no one has come forward with any evidence that Amateur SS emissions have interfered with anyone. ...I cannot agree that [Automatic Power Control] belong[s] in the Rules. We already have a provision that says 'Use minimum power.' Rules should apply to ALL systems, not just new ones. There are so many violations of this Rule now, I find it entirely inappropriate that only SS should be saddled with a proposal this specific.

...properly designed SS systems have minimum likelihood of causing interference. Most vocal has been the repeater Coordination community, yet they have [yet] to conduct any independent studies or come forward with documented cases of interference. They certainly have the means and expertise to do their own tests, yet they refuse, and complain all the while.

...the Rules are very specific, saying that no Amateur station has any title to any particular frequency. Repeater Owners believe the contrary, and they act like it. ...very little of the popular repeater spectrum is actually in use at any one instant. Conversely, much is available to time-agile systems on a minimum/non-interference basis.

Spread Spectrum is a complicated art. Even the simplest SS system designs have been, to date, beyond the technical reach of all but the most advanced Amateurs. Yet, it offers considerable promise, not the least of which is much better spectral utilization than is the current practice.

Perhaps more importantly, Amateur Radio is one of the few vehicles for encouraging young people into taking up a professional career in Radio Engineering. Without the freedom to try new ideas, those individuals will turn elsewhere. The Internet is currently a powerful draw. Fewer and fewer radio engineers are entering the field from college. I believe that it is the Commission's responsibility to nurture this Service, not limit it or contribute to its demise. I urge you to see the detractors in their true light, and adopt the proposal I make...

## 220 MHz Spectrum Management. Assoc. (Chatsworth, CA)

220SMA is in general agreement with the Commission that the proposed amendments would allow for increased spectrum efficiency and allow amateurs to contribute to technological advances in communications systems and equipment. We do, however, believe that there are additional concerns not discussed in detail in the NPRM that require consideration before final rulemaking... Specifically, we have to deal with:

- a) Spread Spectrum (SS) operations in areas where the Amateur community determines that formal coordination procedures are in the best interest of Amateur spectrum management;
- b) SS operations on frequencies below 420 MHz.;
- c) identification of SS emitters, and;
- d) the application of Automatic Power Control (APC) techniques to SS.

There is ...concern that this mode, much like dedicated link and repeater operations, may need and benefit from formal coordination processes.

The 220SMA believes that regulatory recognition of the fact that when interference occurs between a coordinated emitter and an uncoordinated emitter, the uncoordinated emitter is responsible for resolving the interference is as important under SS and mixed mode environments as it is in the fixed frequency world of repeater operations.

...there have been suggestions that SS should be allowed on Amateur frequencies below 420 MHz. Based upon theoretical analysis and empirical tests, it appears that heavy SS usage on a band will eventually degrade the noise floor and significantly affect operations that are sensitive to random noise.

The 220SMA does not want to close the door to possible future SS operations on the 220 MHz and below bands, but does believe that because of the population density and weak signal uses of those bands, SS operation should not be authorized at this time.

The requirement for CW identification of an SS transmitter is considered totally inconsistent with sound technological practice and should be replaced with a technique native to the SS mode being used.

Although operation at the minimum output power required to establish and maintain communications is considered good practice, and APC techniques are a good way to enforce implementation of this practice, we believe that there are significant shortcomings in the proposed APC technique. At a minimum, provisions need to be made for the circumstances where SS emitters are trying to initiate contact with yet to be identified stations, or where they are operating as a central nod in a multi-cast environment. (James T. Fortney, K6IYK, Pres. 220SMA)

## Robert J. Carpenter, W3OTC (Electronic Engineer, Rockville, MD)

Spread Spectrum (SS) holds promise to be an interesting and worthwhile addition to the amateur radio community, even in exciting applications apparently not envisioned in the subject *Notice of Proposed Rule Making*.

This said, the assertions of lack of impact of SS on existing users of the amateur bands are incorrect. Automatic Power Control (APC) will further exacerbate the problem, and represents useless over-regulation. Because of the likelihood of interference to other amateur operations, and the current lack of *de facto* standardization of amateur SS, it is important that SS stations transmit station identification in a manner that can be clearly understood by non-SS amateurs.

...the power density from direct sequence (DS) SS stations can wreak havoc with existing weak signal, EME and satellite operations over a wide geographical range.

...the FCC's authorization of 100 watts appears grossly excessive. ...a more appropriate power limit would be 1 W for all forms of SS except for Narrow Band SS...

...APC will exacerbate rather than improve the interference situation. APC will cause DSSS stations to increase their power so much that the noise floor seen by ALL other stations



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within the 500 kHz spreading band would be increased by about 60 dB (one million times.) ...I conclude that the requirement for APC constitutes over-regulation and will also be useless.

...Frequency hopping (FH) SS cannot share band segments with existing modes. It is asserted that the result [on] other users will be just an occasional "tick" as the FHSS station occupies "their" channel. Even if this were true for interference from a single FHSS station, the ticks would become a roar when a number of FHSS stations were present.

Narrow band SS ...envision[s] a maximum data rate of a few bits per second, spreading over only a few kilohertz, and use of the usual maximum amateur power in the vicinity of one kilowatt output. It would be a mistake for the FCC to adopt Rules which prevent this type of advanced operation. Since NBSS uses approximately the same spectrum width as the more traditional modes such as narrow FM, MCW, etc., I feel that it should be authorized on all amateur frequencies above 50 MHz where MCW is authorized.

...commercial interests providing an unlicensed service in the 902-928 MHz band are concerned about interference from amateur SS stations. It is unreasonable to expect licensed users to modify their operation to accommodate unlicensed users who knew full-well that they would have to accept any and all interference.

Lyle V. Johnson, WA7GXD (Tucson, AZ)

I am co-founder of Tucson Amateur Packet Radio, and I have served on its Board and as its President for many years... It is from the perspective of one who has been a direct participant at the forefront of some of the more sweeping technical developments within the amateur radio community over the past several years, and without commercial interest, that I offer the following comments.

The proposed new rules will in general be conducive to increased experimentation and development of SS techniques within the Amateur community. However, I perceive three impediments in the proposed rules that may defeat much of the stated purpose of the rulemaking.

Specifically, I request that part 97.119(b)(5) be changed to allow identification of an SS station by means of SS techniques, that part 97.311(e) be simplified, and that part 97.311(g) be retained in its present form.

Others [have] pointed out that many SS stations could co-exist with many narrowband stations over the same overall spectrum without mutual interference. To allay the fears of the former, and allow demonstration of the benefits of the latter, SS emissions must necessarily be 'invisible' to a narrowband station's receiver. But, we have in place a rule that *requires* the SS station to operate in a way that *guarantees* the emission will be heard by narrowband receivers! [Interference] can easily be avoided if SS stations are allowed to send their ID in the same manner as they are sending other information -- by narrowband-invisible SS!

Since virtually every other authorized mode in the Amateur Service is allowed by 97.119 to ID by the communications method being employed for the primary communications, it is reasonable that SS stations have this same freedom. If the ideal of efficient spectrum utilization is indeed the goal of these proceedings, the requirement of a narrowband ID is contrary and should be eliminated.

Part 97.311(e) places a significant record-keeping burden on any station operator who wishes to use and SS radio. There

is no similar record-keeping requirement for any other mode of operation within amateur radio... ...I request the Commission drop the present requirement and... rewrite 97.311(e) to read in its entirety "Logs and notebooks pertaining to technical investigations in SS on amateur radio frequencies [should] be retained by the licensee for a period of one year following the date of last entry."

Part 97.311(g) currently allows SS emissions with a maximum power of 100 watts. The proposed rule modifies this considerably, requiring a measurement of received energy per bit, spectral power density of noise and interference. Then a computation must be performed and a limit of the received signal strength be enforced by the local station commanding the distant transmitter to adjust its power output level. Part 97.311(a) already requires that Amateur stations use the minimum power necessary for the intended communication, regardless of mode. Thus, SS operation is already reasonably constrained. Singling out SS operators as being inherently more likely to flaunt this rule, and thus requiring some sort of 'silicon cop' to achieve compliance, seems unreasonable.

Amateur Satellite Corporation (Washington, DC)

On May 5, AMSAT filled comments with FCC in response to Docket WT 97-12, which proposes changes to Part 97 to liberalize the provisions under which Spread Spectrum transmissions are authorized.

AMSAT supported the concept of liberalizing the Spread Spectrum rules, but urged that the amateur satellite band segments be protected from possible interference which might result from stations engaging in communication between points on Earth, not involving satellites. At the same time, AMSAT sought provisions which would permit the use of Spread Spectrum transmissions for amateur satellite communication.

AMSAT is reviewing other comments filed in this proceeding and expects to file reply comments when they are due in June. (AMSAT News Service)

## RADIO ORGANIZATIONS JOIN FORCES TO LOOK TOWARD YEAR 2000 CONVENTION

NEWINGTON, Conn., May 16, 1997 -- The American Radio Relay League (ARRL), the national association of Amateur Radio operators has announced that Dayton's annual Hamvention® will be the host site for the ARRL national convention in the year 2000.

The Dayton Hamvention® is the nation's largest single Amateur Radio event, attracting more than 30,000 participants to Dayton, Ohio, each year. The year 2000 will be the first time that the ARRL and the Dayton Amateur Radio Association (DARA) sponsors of the Hamvention®, will combine their talents for this yearly event.

"The number of enthusiasts Dayton attracts from around the United States and from around the world, combined with the quality of the event, is unparalleled," says ARRL Executive Vice President David Sumner. "Dayton, Ohio, is the natural site for our national convention and we are delighted to be working with members of DARA and Hamvention® officials in this combined effort to launch Amateur Radio into the 21<sup>st</sup> century."

(ARRL News Release, released at the Dayton Hamvention®)



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## EMERGING TECHNOLOGY

■ **Researchers at MIT have created a simple finger ring to watch elderly patients who live alone.** The ring allows doctors to monitor a patient's vital signs in the home 24 hours a day. The ring measures pulse rate and the amount of oxygen in arterial blood. Future versions will also measure blood pressure and blood flow rate in the arteries.

Data from the ring is transmitted to small receivers installed in the patient's home which are connected to a computer that analyzes the data. If anything seems out of the ordinary, the computer sends a warning signal via the Internet to a hospital, alerting doctors to the potential problem.

■ **The future of high speed Internet access lies with orbiting satellites.**

Telephone (and even faster 5Mbps cable modems) are slow compared to the potential of direct satellites. Hughes DirectPC (a PC version of DirecTV) just now coming on the market offers almost instantaneous speeds up to 24Mbps. That's almost a thousand times faster than today's average telephone modem -- and a hundred times faster than cable modems which aren't even available yet. DirectPC cost is expensive and currently aimed at corporate users. (You pay by the number of data megabytes received.) But costs will come down as satellite access evolves. Many big telecom corporations (including AT&T) will be deploying satellite networks within the next five years.

## COMPUTER INFO

■ Personal computers are migrating to the living room. **Toshiba has introduced a new Home Entertainment 133-MHZ PC** in Japan that can be hooked to either an external PC monitor or a television set. It also can be used as a DVD (digital video disk) player. Cost will be around \$2000.

**NEC has a similar machine with a wireless keyboard** designed to be used with a television to provide access to TV, DVD-video, CD audio, ROM disks and the Internet. Cost is \$4000.

■ **Ziff-Davis says it will launch a cable-TV network for computer users.** The 24-hour network will be known as ZDTV: Your Computer Channel Network.

Operation is scheduled to begin in March 1998. Ziff-Davis is the world's largest computer magazine publisher ...best known for PC Magazine and Computer Shopper.

■ **Federal anti-trust regulators are looking into Microsoft's recent \$425 million purchase of WebTV.** The Justice Dept. wants to know if the merger will stifle competition in the developing market for software contained in set-top boxes or future digital television sets enabling TV viewers to connect to the Internet. Microsoft wants to merge PCs and TVs. Consumers will spend some \$150 billion over the next ten years to replace the nation's 220 million analog TV sets.

## INTERNET NEWS

■ The 1996 Telecom Act mandated that all Americans should have access to telecommunications service beyond local telephone. **Toward that end, the FCC has unanimously adopted a plan that would give all public and private schools up to a 90 percent discount in the cost of Internet access** including the cost of inside wiring of classrooms.

The discount would be available to 110,000 schools and 50 million students and teachers. The cost (up to \$2.25 billion a year) would be paid for by a federal charge to homes and businesses with more than one telephone line. A third party (the National Exchange Carrier Association) would collect and distribute the funds beginning Jan. 1, 1998. Schools can apply for funding on July 1, 1997.

The discount would depend upon the wealth of the school as measured by the number of students eligible for federally subsidized lunches. State regulators must first accept the criteria. Vice President Al Gore predicted the average discount would be about 60%.

■ **The Iowa Internet freeway to become a toll road.** In 1990, the state formed the \$300 million Iowa Communications Network (ICN). The objective was to bring free Internet connections to school classrooms.

Since a third of the state doesn't have local Internet service, students and teachers also wanted to be able to dial into ICN from their homes. That didn't go over well with telephone companies and ISPs (Internet service providers) who complained that they could not compete with a state-subsidized network. GTE, which was

to begin offering local Internet service at \$15 a month, canceled their plans.

In April, Iowans (who foot the \$37 million annual ICN cost) voted to get the state out of the telecommunications business, but the measure was vetoed by the Governor. State legislators are now trying to figure out what to do with the \$300 million network. Alternatives include privatizing it into an independent utility ...or selling ICN to a telephone company such as AT&T. (*Business Week*, 5/19/97)

■ **The state of Wisconsin wants to spend over \$600 million** over the next six years to wire all of its schools to the Internet and to install two-way video lines.

■ **There are tons of travel agencies on the Web**, but the best two are Microsoft's "Expedia" ([www.expedia.com](http://www.expedia.com)) and Sabre Interactive's "Travelocity" ([www.travelocity.com](http://www.travelocity.com)) both require free registration. And both have many nice free services such mapping, finding low fares and last minute deals over secure connections.

Expedia was recently overhauled and relaunched to facilitate faster booking. You can now click on the seat you want and check incoming flights for delays, cancellations and gate numbers.

Travelocity's Sabre system is the same one that most professional travel agents use. It used to be owned by American Airlines but is now separate. More than 500,000 people are now registered with Travelocity. The service is in the process of implementing electronic ticketing over the Internet, the first to do so!

**And be sure to check out <http://www.hotcoupons.com>** They have lined up all sorts of freebies that are available in your city ...or ones that you travel to. You just click on the state and then the city and print out the coupons you want.

They are great for restaurants although we found that the discounts sometimes aren't as big as those offered locally with an expiration date!

■ **The government of Gibraltar has just begun offering online Keno and Bingo** gambling over the Internet. Inter-Keno and BingoExpress are interactive global lottery games played 24 hours a day. (URLs: <http://www.interkeno.com> and <http://www.bingoexpress.com>)

Potential winnings are up to \$1 million (for Keno) and \$250 thousand (for Bingo.) Up to 20% of gross revenue is diverted to "The New World Foundation" and other charitable organizations. You pay by credit card. The first \$5.00 is free to get the feeling of the games.



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You win at Bingo by getting 5 numbers (out of 75) in a horizontal row. Keno games are played on the hour and half hour. You have 10 minutes to post your bet before eighteen numbers are drawn. The possible winnings are dependent on how many numbers (1 to 10) you have marked and how many of your marked numbers are correct compared with the 18 numbers drawn. The winning numbers drawn are shown on your java-enabled browser as you play.

You receive a reference number consisting of date + time + serial number after you play which is used to reference your winnings. The games is audited by Coopers & Lybrand, the same firm that audits many lotteries around the world (including our Texas state lottery.)

Gibraltar (like Liechtenstein) is one of the world's smallest nations - only 2.5 sq. miles. Gibraltar -- a British colony famous for its "rock" -- is located on the southern tip of Spain on the Strait of Gibraltar which separates Spain from Morocco.

**A U.S. bingo game is offered at** <http://www.bingozone.com> which the site owners say is legal. And it well may be. There is no cost to play, but you can win real cash prizes every 20 minutes. The site is advertiser supported.

■ **Japan's Tiger Electronics is lining up a summer US advertising campaign** to promote its new "game.com" portable gaming "system with touch-screen and speech technology and Internet access.

They also will be promoting their virtual palm-size "Giga Pets" in the fall. The \$10 key chain digital game challenges youngsters to raise a dog or cat. "Game.com" and virtual pets will be hot sellers this Christmas.

■ **Anti spammers fight back! A "reverse SPAM attack" completely shut down Cyber Promotions web site** until Wednesday, May 7th. Monday, May 5<sup>th</sup> was declared "Cinco de Mayo Cyberpromo Mailbomb Day" by an Internet newsgroup that opposes unsolicited e-mail advertising messages. A fifty person brigade flooded Cyber Promotions computer system with millions of messages. Cyber Promotions was also the victim of a hacker who infiltrated their system and stole lists of businesses who paid them to distribute junk advertising. The list was posted on the Internet. Cyber Promotions sends out nearly 4 million junk e-mails daily.!

■ **Netscape says it will continue to offer "cookie" technology** in its upcoming Navigator browser. A "cookie" is a file

that is sent to computers by a website and saved on the user's hard disk. An Internet standards group had asked Netscape to reject third-party snooping. Publishers and advertising agencies use the technology to track visitors to various sites. "Third party cookies" are those sent to a web surfer from a site other than the site the user visited. In other words, someone can monitor which sites you visit. Netscape said that their new Navigator 4.0 browser will let PC users know when a "cookie" is being sent and provide the option of refusal. Netscape also added that if they were to completely disable this feature, some Web content would not work at all.!

■ **A book-selling war on the horizon! Watch for the new stand-alone Barnes & Noble book website.** At present they offer 1 million titles at huge discount through America OnLine. They are taking aim at current leader, Amazon.com which has 2.5 million titles online.

Researcher, Find/SVP says that 27% of Netizens (or 7.5 million) have purchased online (up from 19% and 1.6 million just two years ago.) According to their study, some 31.3 million adult users are now the Internet with another 55 million "Interested" in joining.

■ **Check out the Microcult website.** (Located at: <http://www.microcult.com>) It is a Microsoft spoof site. And there are many other such sites on the Internet. "The MSBC Super List of Anti-Microsoft Websites" lists about 80 of them!

Another site, the "Bill Gates Personal Wealth Clock" keeps track of his fortune in real time and "Your Personal Contribution" by downloading the U.S. Census, the Microsoft stock price and shares owned by Gates. [Today's report had Gates worth \$34.1607 billion, U.S. population: 267,298,900, ...or \$127.80 from every U.S. citizen.]

## WASHINGTON WHISPERS

■ **The Clinton Administration's chief Internet policy advisor** (Ira Magaziner) says he is advising the president to veto any future legislation that is similar to the Communications Decency Act. He said the first CDA (which makes indecent material inaccessible to minors) was a mistake. "We think it is a dangerous path for governments to get into the censorship business. Instead, governments should encourage private development of rating systems." Magaziner heads up a task force

(composed of 18 federal agencies) looking into how the government should be involved in electronic commerce. He says the federal government should take the minimum regulatory approach. "The Internet should be unregulated but have a predictable legal environment" for making and executing contracts "...the Internet should be declared a duty-free (tax free) zone." Magaziner added "...privacy and protecting children are two areas that do need special Internet regulation." Existing anti-fraud statutes could be applied to online scams. Ira Magaziner has been a Clinton advisor since 1993.

■ **The FCC has overhauled the nation's telephone charges** in an attempt to encourage competition. Theoretically, the overhaul should yield \$25 billion in lower phone costs. The fact is, however, people and businesses who have more than one phone line and who make very few long distance calls could see higher costs. Long distance companies are the ones who will see big savings. They will pay about \$20 billion less in "access charges" (which they pay to local telephone companies) over the next five years. AT&T says they will pass on the savings to consumers.

## AMATEUR RADIO

■ **There is a great Java World Clock on the Internet** that simultaneously shows the current time (incremented each second) for all 24 time zones around the world. You can program the clock to display in AM/PM, 24-hour format and Daylight/Standard time. You simply select your offset from GMT and "push" some on-screen buttons. Address is: <http://www.arachnoid.com/lutusp/worldclock.htm>. Bookmark this site!

■ **Amateur radio operator Dave Smith, KE6CNL (N. Hollywood, CA) is very worried** about the whereabouts of his wife April F. Smith, KE6CNK. She disappeared in April leaving him and two sons aged 9 and 11 to fend for themselves. One of the sons has a disability. If anyone has any information, call Dave at 818/763-9036 to e-mail to: [band98@juno.com](mailto:band98@juno.com)!

■ **The Personal Radio Steering Group** has just come out with the **GMRS National Repeater Guide**. Cost is \$25 (including shipping) from Corwin D. Moore, Jr. WB8UPM. (P.O. Box 2851, Ann Arbor, MI 48106)



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It also proposes that SS communications also be allowed with a station in another country that permits such communications. You were asked to contemplate this matter and place your comments on the public record May 5, 1997. Currently, you should be reading each other's comments and preparing your reply comments. The closing date is June 5, 1997.

## The meaning of "Amateur"

"One of the more unpleasant things that we have to do from time-to-time is listen to complaints from your neighbors. To you, the term 'amateur' has a totally different meaning than it does to your neighbors. To them, the term probably has the literal meaning of 'non-professional.' The dictionary says that it 'implies a relative lack of skill' 'incompetence,' a 'beginner' and a 'superficial dabbler.'

'After listening to their complaint, we tell them that the FCC rules impose very tight technical standards on your stations with regard to the frequency bands on which they transmit and with regard to unwanted emissions. We point out that you have proven through careful and comprehensive examinations that you have the ability to operate your station properly.

'The FCC is so confident in your ability and your examination process that you are authorized to design and construct your stations and operate them anywhere the FCC regulates communications. Moreover, the FCC does not even include your transmitters under its type certification program.

## 1996 License examinations

There were 135,906 examinations administered in 1996. By region:

### Percent of 1996 Amateur license Examinations

Region 4 - 19.58%	Region 9 - 6.22%
Region 6 - 13.78%	Region 3 - 5.18%
Region 5 - 11.42%	Region 1 - 4.87%
Region 7 - 10.62%	Region 14 - 1.88%
Region 8 - 9.04%	Region 13 - 1.32%
Region 10 - 7.61%	Region 12 - 1.14%
Region 2 - 6.81%	Region 11 - 0.53%

You'll note there is a 'Region 14.' That is an unofficial region that has been added to the traditional 13. It is for the exams that you are administering in foreign countries. [(Region 11 = Alaska, Region 12 = Caribbean, Region 13 = Hawaii and Pacific.) The number of applicants that took their exams outside of the United States last year was 723.

## RF Safety

"Last summer, the FCC adopted new guidelines

and methods for evaluating the environmental effects of RF radiation from FCC-regulated transmitters. They are in the *Report and Order* in ET Docket No. 93-62. The *National Environmental Protection Act of 1969* requires Federal agencies to evaluate the effects of their actions on the quality of the human environment.

"In 1985, the Commission adopted rules requiring applicants for broadcast stations and satellite uplinks to make an *Environmental Assessment* where the general public or workers might be exposed to high levels of RF radiation. The basis for these requirements were the RF protection guidelines adopted by the *American National Standards Institute*.

"Your stations were excluded from these requirements along with certain low-power, intermittent or normally inaccessible stations. You, however, took steps to ensure RF safety. You developed and shared information. You formulated your program of 'prudent avoidance.' Articles appeared in your magazines and handbooks. You added questions on RF safety to your exam question pools.

"In 1992, based upon new guidelines issued by the *Institute of Electrical and Electronic Engineers*, the ANSI adopted new guidelines. You promptly included this information in your handbooks. As you may recall, it indicates that the greatest protection is needed in the VHF range: between 30 and 300 MHz. That takes in your 6-meter, 2-meter, and 1¼-meter bands.

"In 1993, the FCC proposed to revise the rules based upon these new guidelines. Over 100 comments were filed including those from the *Environmental Protection Agency*, the *Food and Drug Administration* and other federal health and safety agencies as well the amateur service community and the public sector.

"There are numerous variables to be considered in determining whether an amateur station complies with guidelines for environmental RF exposure.

- Some 720,000 of your stations are licensed to transmit from any place where the FCC regulates the service, as well as on the high seas.
- Your stations do not require pre-approval. You don't need permission to move your station or to add additional stations at the same or other locations.
- The granting of your license is conditioned upon your demonstrating to your peers that you have the operational and technical qualifications required to perform properly the duties of an amateur operator in the United States under the FCC rules that you have participated in formulating.
- Your stations are located practically anywhere and everywhere. They are in dwellings, in airplanes, on ships and space craft. They are even carried on your person.
- Many of your stations transmit from residential or other areas where your families, friends and neighbors may be in close proximity to the RF radiation



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source.

- Your station transmissions are usually made intermittently and may involve as many as 1,300 different emission types — each with a distinctive on-off duty cycle.
- Finally, most of you only engage in two-way communications. Even when in operation, your station is usually transmitting but half of the time.

"In 1990, The FCC and the *Environmental Protection Agency* made measurements at several of your stations. It found that you may have some situations where excessive exposure could occur. Among yourselves there appears to be varying degrees of knowledge and concern about the potential hazards of RF radiation. Your comments in that Docket — to say the least — were somewhat divided as to the proper course of action.

"The FCC concluded that, although it appears to be relatively small, *there is* a potential for your stations to cause humans to be exposed to radiation in excess of the guidelines.

- Your stations transmit with up to 1,500 watts on frequencies in specified bands from 1,800 kHz to over 300 GHz.
- Certain of your emission types — particularly FM and PM — have high duty cycles.
- Your stations are not subject generally to restrictions on antenna gain, antenna placement and other exposure variables. Your antenna requirements are based upon aeronautical safety and protection of land of environmental importance or that is significant in American history, architecture or culture.

"Even though excessive exposure may be relatively uncommon, *it is possible*. It was decided, therefore, that the guidelines must also apply to your station. In some instances, you will be required to evaluate your station for compliance with the guidelines.

"First, no evaluation is required where your transmitter power is below a certain threshold level. Currently this is 50 watts RF peak envelope power at the transmitter output terminals. Some of you may decide to just turn that power control knob back a bit. The ham on the other end probably won't even notice.

"If you decide to run above the threshold, you're going to determine if your station will cause an excessive level of RF power density in 'controlled' environments and in 'uncontrolled' environments. An 'uncontrolled environment' is any location where your station causes RF exposure to persons who have no knowledge or control of it... your neighbors, for instance.

"A 'controlled environment' is a location where there are only persons who are aware of the potential for a certain level of exposure to RF radiation. This would apply to you, your immediate family and other persons in your home, your car or wherever you operate your sta-

tion. Presumably, they would understand their situation.

"As pointed out in your handbooks, the best you may be able to do at present is to estimate the RF density around your station based upon measurements made at other stations or with computer modeling. You have been busy developing and disseminating RF safety information in the form of tables, charts and computer analytical tools. If your station is not absolutely safe — for you, for your family, your friends, and for your neighbors — you want to know about it and you want to make it safe.

"Your suggestion for more questions on RF safety in your examinations was also adopted. The FCC found it to be your duty to prevent your station from transmitting from any place where it could cause human exposure to levels of RF radiation that are in excess of the guidelines. The purpose of your license examinations, after all, is to prove that you can perform your duties properly at a station in the United States.

"You came out with a new question pool, including RF safety questions, for your Element 2 written exam. Your VEs intend to start in July asking five questions about the things the operator of every amateur station needs to know about basic RF safety. You also came out with a new question pool, including RF safety questions, for your Element 3(A) exam.

"You're going to be asking five questions about the things the operator needs to know about RF safety at your VHF and UHF stations. You are now working on a new Element 3(B) exam question pool. You're going to be asking five questions about the things the operator needs to know about RF safety at your MF and HF stations.

"The FCC also adopted your suggestion that all amateur operators be required to certify that they have read and that they understand the rules regarding RF safety and the *OET Bulletin No. 65* at the time of filing a license application. Some of you are helping out with the preparation of the *OET Bulletin*.

## Questions from the audience

A Q&A period followed the FCC presentation. Amateurs wanted to know about electronic filing of renewals, interference from a neighboring alarm system, covenants and other pending rule making. On covenants, Johnston said that they are private agreements and that the best way to deal with them might be to move. (He said he did this once.)

Johnston said that the 'Date of Birth' has been taken out of the online FCC database due to privacy concerns. He also acknowledged that the ARRL had filed a *Petition* requesting that Advanced Class amateurs be authorized to administer General Class exams. He said that the Commission was very busy handling more important matters — such as implementing the Telecom Act and spectrum auctions — and that the availability of additional VEs did not seem to be a pressing problem.